

advancing tropical cyclones, in which the precipitation is nearly all confined to the forward half.

The foregoing description of conditions is not offered as an adequate explanation of the excessive rainfall. In this, as in many other instances of unusual rainfall, data are insufficient for a satisfactory basis of explanation. From what is known of the precipitation usually attending slight disturbances, the effects seem out of proportion to the apparent preliminary conditions. We may suggest that the angle of inclination of the ascending air in the present instance probably was relatively steep and that condensation aided in intensifying and prolonging the ascent of air, while the continued presence of the disturbance, with its wind circulation, provided the means by which the warm, moist Gulf air was fed into the precipitation machine.

Losses of cotton and other crops in overflowed fields in northern Louisiana, attending and following the heavy rains, amounted to at least a few million dollars. The Red River, which was low when the rain began, had

ample channel to pass the runoff, at the rate at which it was received, without reaching bankful stage; but a number of smaller, ungaged streams overflowed.

The following is quoted from a report by Mr. J. W. Cronk, in charge of the Shreveport, La., office of the Weather Bureau:

"The drainage system in this section was so ineffectual that many thousands of acres of land were deeply covered with water for many days, with still a thousand acres or more not free from this water in lower Bossier Parish at the time of making this report, August 10. In Caddo Parish, on the right bank of Red River, where the drainage was inadequate, there were from 10 to 20 thousand acres of farm land more or less badly flooded, and in Bossier Parish, on the left bank of Red River, there were from 50 to 75 thousand acres or more also badly flooded, with some parts of the paved highways covered by water for 2 weeks. Resulting losses in this section, mainly to the nearly matured cotton crop, are estimated as being between one and two million dollars, at a low valuation."

BIBLIOGRAPHY

C. FITZHUGH TALMAN, in charge of Library

RECENT ADDITIONS

The following have been selected from among the titles of books recently received as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies:

International commission for the exploration of the upper air.

Procès-verbaux des séances de la réunion de la Commission internationale pour l'exploration de la haute atmosphère, tenue à Madrid mars 1931. 158 p. figs. plates (part fold.) 24½ cm. (Sec. de l'Organ. mét. intern. No. 8.)

International geodetic and geophysical union. Section of meteorology.

Quatrième assemblée générale. Stockholm—août 1930. Procès-verbaux des séances . . . 2. Annexes. Paris. 1933. 170 p. 24½ cm.

International meteorological organization.

II^e rapport de la Commission internationale de Pannée polaire 1932-33. Compte-rendu des travaux de la commission pendant sa deuxième année de travail. Procès-verbaux des séances de la réunion à Innsbruck septembre 1931. Leyde. 1932. 188 p. figs. plates (some fold.) 24½ cm. (Sec. de l'Organ. mét. internat. No. 12.)

International meteorological organization.

Les messages symoptiques du temps. Les messages pour l'aéronautique. Leyde. 1933. 163 p. suppl. 60 p. 24½ cm. Fasc. 4. Édition 1933. (No. 9.)

Laurens, Henry. The physiological effects of radiant energy.

New York. 1933. 610 p. illus., diagrs. 23½ cm. (American chemical society. Monograph series. [no. 62.]) Bibliography: p. 577-593.

Lwów. Université. Institute de géophysique et de météorologie.

Communications. v. 5. Nos. 57 à 66 des résultats des recherches de Henryk Arctowski et de ses collaborateurs . . . faites à la Société des naturalistes polonais et publiées dans la revue "Kosmos." 1930. p. 395-605. figs. plates. 23 cm. [Polish text: French abstract.]

U.S. Agriculture dept. Forest service.

List of references concerning lightning. List compiled by the General petroleum corp . . . Missoula. [1933.] 134 p. 27 cm. [Typewritten.]

U.S. Weather bureau.

Instructions for making four-hourly reports. Washington. 1933. 19 p. 27 cm. (Circular, July 15, 1933.) [Manifolded.]

U.S. Weather bureau.

Instructions for reporting pilot balloon observations. Washington. 1933. 19 p. 27 cm. (Circular, July 1, 1933.) [Manifolded.]

SOLAR OBSERVATIONS

SOLAR RADIATION MEASUREMENTS DURING JULY 1933

By IRVING F. HAND, Assistant in Solar Radiation Investigations

For a description of instruments employed and their exposures, the reader is referred to the January 1932, REVIEW, page 26.

Table 1 shows that solar radiation intensities averaged above normal at all weather bureau stations at which normal incidence measurements are made.

Table 2 shows a deficiency in the total solar radiation received on a horizontal surface at Madison, Pittsburgh, La Jolla, Gainesville, and Miami, and an excess at all other stations.

Turbidity measurements made on the 6th show that this was an exceptionally clear day for July. Readings obtained on the following day indicate greatly increased turbidity which was the forerunner of a cloudy period that persisted until the 18th.

Polarization measurements obtained at Washington on 4 days give a mean of 57 percent with a maximum of 59 percent on the 19th. At Madison, observations obtained on 8 days give a mean of 64 percent. with a maximum of 72 percent on the 24th. The Washington values are close to the July normals, but the Madison values were slightly above normal.